

Thank you for your decision to inter-calibrate your research with the World Meteorological Organization [WMO] community.

Please note;

I have attached a purchasing document [MOU].

Purchaser **MUST** complete the text in **red** in this document or it cannot be accepted. **E-mail a signed copy of this document to Duane Kitzis at [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov) or [refgas@noaa.gov](mailto:refgas@noaa.gov), or the project cannot be accepted or started. We cannot accept any other revisions to this document.**

**U.S. Universities are required to provide a copy of their Purchase Order with the signed MOU.**

Complete the following red text;

- Purchaser, Invoice contact name and address on the second page,
- DUN and Bradstreet Number, and Taxpayer ID on first page info required for all Requesting U. S. Businesses and Universities.
- Section 4, Name, telephone and complete shipping address of Requesting Business or University Section 6, Technical and administrative points of contact for this agreement,
- Section 9, Signature and signatory information.

If you have any questions email me, Duane Kitzis, [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov)  
**I cannot accept the work to make your standards until I have received an e-mailed copy or 1 hard copy of this completed document.**

Duane R. Kitzis

National Oceanic and Atmospheric Administration (NOAA)  
Global Monitoring Division (GMD)  
Carbon Cycle Group  
325 Broadway – R/GMD1  
Boulder, CO 80305, USA  
Phone: 303-497-6675  
Fax: 303-497-6290  
E-mail: [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov)  
Web Site: <http://www.cmdl.noaa.gov/ccgg>

**MEMORANDUM OF UNDERSTANDING**

**THROUGH WHICH**

**[Name of Requesting Business or University]**

**IS PURCHASING**

**Trace Gas Air Standards**

**FROM**

**Earth System Research Laboratory (ESRL)**

**Global Monitoring Division (GMD)**

**Office of Oceanic and Atmospheric Research (OAR)**

**National Oceanic and Atmospheric Administration (NOAA)**

**U.S. Department of Commerce (DOC)**

**Agreement No:** \_\_\_\_\_

**Contact Name and Address that NOAA should send invoices to:**

[Requesting Business/University invoice contact person]

[Title of Requesting Business/University invoice contact person]

[Address where invoice should be sent to Requesting Business/University]

Phone: [phone number of Requesting Business/University invoice contact person]

Fax: [fax number of Requesting Business/University invoice contact person]

E-mail: [E-mail address of Requesting Business/University invoice contact person]

**FOR REQUESTING U.S. BUSINESS or UNIVERSITY ONLY:**

**Dun & Bradstreet No:**

**Tax Payer ID No:**

<b>NOAA ESRL GMD ACCNT INFORMATION</b>
<b>DUNS/BPN:</b> 162008767
<b>EIN:</b> 84-1040636
<b>ALC:</b> 13-14-0001
<b>OMB Max Code:</b> 006-48
<b>TAS:</b> 13X1450
<b>BETC:</b> COLL

## **1. PARTIES AND PURPOSE**

This Memorandum of Understanding (MOU) establishes an agreement between [Name of Requesting Business or University] and Earth System Research Laboratory, Global Monitoring Division<sup>1</sup> (ESRL/GMD), through which Non Federal Businesses and Universities will pay ESRL/GMD for calibrated trace gas air standards, including shipping and handling.

## **2. BACKGROUND**

High precision measurements of the trace gases CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O, and SF<sub>6</sub> are being undertaken by many laboratories of various nations in order to better understand the emissions and biogeochemical cycles of these gases. There can be no integration of all these various measurement projects unless the data are referenced to common well-defined calibration scales. The consistency required for optimally usable atmospheric CO<sub>2</sub> measurements and intercomparison must be no worse than 0.1 umol/mol for the northern hemisphere and 0.05 umol/mol in the southern hemisphere [World Meteorological Organization (WMO), 1993]. Because of stringent quality controls necessary for the measurement of long-lived trace gases, stable reference gas standards are an integral part of any long-term measurement program.

ESRL GMD serves as the Central Calibration Laboratory for the WMO Global Atmosphere Watch. In this role, GMD maintains and distributes gas standards for CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O, and SF<sub>6</sub> for atmospheric monitoring. The need for gas standards at ambient mixing ratios has not been filled by a private company or corporation demonstrating the desired level of consistency over time.

The [Greenhouse Gas Global Reference Network](#)<sup>2</sup> group (GGGRN) of ESRL/GMD has been involved with making CO<sub>2</sub> standards since the early 1970s [Miller, 1974] and over the years has expanded to include methane, carbon monoxide, and the stable isotopes of CO<sub>2</sub>. GGGRN can fill and calibrate compressed gas cylinders for use as standard reference gases by other laboratories for measurements of CO<sub>2</sub>, CH<sub>4</sub>, CO, and the stable isotopes of CO<sub>2</sub> (<sup>13</sup>C and <sup>18</sup>O).

## **3. AUTHORITY**

The authorities for ESRL/GMD to enter into this agreement are:

- (1) The "Special Studies" authority, 15 U.S.C. § 1525 (first paragraph), which permits DOC to provide, upon the request of any person, firm, or public or private organization (a) special studies on matters within the authority of the Department of Commerce, including preparing from its records special compilations, lists, bulletins, or reports, and (b) furnishing transcripts or copies of its studies, compilations, and other records.

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<sup>1</sup> <http://www.esrl.noaa.gov/gmd/>

<sup>2</sup> <http://www.esrl.noaa.gov/gmd/ccgg/index.html>

- (2) 33 U.S.C. § 883d, which authorizes NOAA to increase engineering and scientific knowledge by conducting developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism).

#### **4. TERMS AND CONDITIONS**

ESRL/GMD will achieve full cost recovery for the goods and services it is providing under this agreement.

Requesting Business or University assumes responsibility for the safe handling of compressed gas cylinders upon the receipt of cylinders from ESRL/GMD.

Compressed Gas Cylinders are regulated by U.S. Law under CFR Title 49, parts 106-179.

This Agreement is subject to the availability of funds.

##### **Standards:**

Unless otherwise stated, cylinder is size N150, 29.5 liter internal volume, Ceodeux brass packless, GCA590 valved.

##### **Logistics for services are:**

4-6 weeks to fill

4-6 weeks to calibrate

Isotopes may take an additional 3 months.

Standard turn around time varies due to seasonal logistics and calibration queue.

##### **Standards will be delivered to:**

Requesting Business or University must state who and where the standards will be shipped to

[Requesting Business/University delivery contact person]

[Title of Requesting Business/University delivery contact person]

[Address of Requesting Business/University delivery contact person]

[phone number of Requesting Business/University delivery contact person]

[fax number of Requesting Business/University delivery contact person]

INCLUDE IMPORTATION BROKER CONTACT INFORMATION IF THERE IS ONE.

For importation pro-forma invoice, we need your tax ID number:\_\_\_\_\_

**Return Shipping and handling:****DAP – Delivered at Place (named place of destination)**

Requesting Business and Universities pay for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer. Import clearance = import duty and VAT and not the Import Customs Clearance. There is no seller obligation for import clearance.

*One recalibration for CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O/SF<sub>6</sub> after use is included in the cost of the standard gas. THIS IS HIGHLY RECOMMENDED EVERY 3 YEARS FOR PRECISION WORK AND SHOULD AT LEAST BE PERFORMED AT THE END OF THE CYLINDER'S USE [20 atm pressure].*

ESRL/GMD will provide calibration of gases to Requesting Business or University, who will pay ESRL/GMD in advance for its services, based on the following price table:

<b>SERVICE</b>	<b>COST</b>	<b>UNIT</b>	<b>Q.</b>	<b>TOTAL</b>
<b>N150 Al cylinder, 29.5 liter, none or one gas targeted</b>	<b>\$1,015</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>N80 Aluminum cylinder, 15.8 liter volume</b>	<b>\$925</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>N60 Aluminum cylinder, 10.8 liter volume,</b>	<b>\$820</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Nwr filling [less up air, shipping to bldr and tank]</b>	<b>\$530</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Filling Aculife AL150 or stainless steel 34L by HATS system</b>	<b>\$970</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Aculife cylinder AL150</b>	<b>\$631</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Stainless steel cylinder 35L</b>	<b>\$5,040</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Multi-species targeting</b>	<b>\$76</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>CO2 WMO scale inside the Range 250-500 PPM</b>	<b>\$1,120</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>CO2 WMO scale outside the Range 250-500 PPM</b>	<b>\$1,330</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>CH4 RANGE 300-4000 PPB</b>	<b>\$795</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>CO RANGE 40-500 PPB</b>	<b>\$780</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Stable Isotopes of CO2 [C13 &amp; O18]</b>	<b>\$750</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>N20 RANGE 100-360 PPB, SF6 RANGE 1-10 PPT</b>	<b>\$750</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Calibration for CFCs by ECD</b>	<b>\$775</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Calibration for halomethanes by GCMS</b>	<b>\$850</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Additional recalibrations Price (US Dollars):</b>	<b>\$310</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Shipping and handling – U.S. Mainland</b>	<b>\$155</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Shipping and handling –</b>	<b>\$297</b>	<b>Each</b>	<b>0</b>	<b>\$0.00</b>
<b>Financial Management Service Collection Cost *</b>	<b>\$0.84</b>	<b>Each</b>	<b>1</b>	<b>\$0.84</b>
				<b>AMOUNT DUE</b>
<b>TOTAL AMOUNT OF PAYMENT TO ESRL/GMD</b>				<b>\$0.84</b>

**\* Required on all agreements by the Department of Treasury per Office of Management & Budget Circular A-25, Policy Memorandum 15-01 dated February 1, 2015.**

## **5. TRANSFER OF FUNDS**

**Payment is required in advance of, or simultaneously with,** the rendering of goods or services provided by ESRL/GMD.

Requesting Business or University is responsible for all payment transfer fees and costs.

To purchase from ESRL/GMD, one (1) original signed copy of this “Memorandum of Understanding”, along with payment or appropriate funding document should be mailed to the ESRL/GMD Technical Contact listed in the contact section below.

**Payment should reference project number 36R1MZKPPT (Kitzis) or 36R1MXEPBH (Hall), as appropriate, and be made in US dollars payable to NOAA/DOC.**

**If you are unable to make payment upon submission of signed MOU, you will receive a NOAA invoice.** NOAA will invoice the Requesting Business or University for the full amount of goods or services upon receipt of the fully signed MOU. **The Requesting Business or University is expected to make payment upon receipt of the NOAA invoice** by check according to the Invoice instructions, or electronic payment can be made according to Attachment A instructions.

All funding documents, if submitted, **must** contain the following information:

- All costs shown in U.S. Dollars,
- All text in English,
- A clear description of goods and services being paid for,
- Clear invoicing and ship to (standards delivered to) instructions along with names, addresses, phones, faxes and email addresses.
- Funding document should reference project number 36R1MZKPPT (Kitzis) or 36R1MXEPBH (Hall), as appropriate, and be made payable in US dollars to NOAA/DOC
- Universities are required to provide a copy of their Purchase Order (PO).

**For Requesting U.S. Businesses/Universities only:**

- Employer Identification Number(s),
- Dun & Bradstreet Number(s),



## 6. CONTACTS

The technical points of contact for this agreement are:

[State either Duane Kitziis/GGGRN or Brad Hall/HATS, as appropriate]  
Earth System Research Laboratory (ESRL)  
Global Monitoring Division (GMD)  
National Oceanic and Atmospheric Administration (NOAA)  
325 Broadway – R/GMD1  
Boulder, CO 80305, USA  
Phone: 303-497-6675 (Kitziis)  
303-497-7401 (Hall)  
Fax: 303-497-6290  
E-mail: [duane.r.kitziis@noaa.gov](mailto:duane.r.kitziis@noaa.gov) or  
[bradley.hall@noaa.gov](mailto:bradley.hall@noaa.gov)  
Web Site: <http://www.esrl.noaa.gov/gmd/ccgg/index.html> (GGGRN)  
<http://www.esrl.noaa.gov/gmd/hats/> (HATS)

[Requesting Business/University technical contact person]  
[Title of Requesting Business/University technical contact person]  
[Address of Requesting Business/University technical contact person]  
Phone: [phone number of Requesting Business/University technical contact person]  
Fax: [fax number of Requesting Business/University technical contact person]  
E-mail: [E-mail address of Requesting Business/University technical contact person]

Fiscal and budgetary communications can be directed to:

Bill Cushman  
Budget Analyst  
NOAA/ESRL/GMD  
325 Broadway – R/GMD  
Boulder, CO 80305, USA  
Phone: 720-233-5195  
E-mail: [bill.cushman@noaa.gov](mailto:bill.cushman@noaa.gov)

[Requesting Business/Univ. fiscal and budget contact person]  
[Title of Requesting Business/Univ. fiscal and budget contact person]  
[Address of Requesting Business/Univ. fiscal and budget contact]  
Phone: [phone number of Requesting Business/Univ. fiscal and budget contact]  
Fax: [fax number of Requesting Business/Univ. fiscal and budget contact]  
E-mail: [E-mail address of Requesting Business/Univ fiscal and budget contact]

The parties agree that if there is a change regarding the information in this section, the party making the change will notify the other party in writing of such change.

## **7. DURATION OF AGREEMENT, AMENDMENTS AND MODIFICATIONS**

This agreement will become effective when signed by both parties. The agreement will terminate when the Requesting Business receives all materials and analysis results, but no later than three years from the effective date. This agreement may be amended at any time by mutual written consent of the parties

Any party may terminate this agreement by providing thirty days written notice to the other party. In the event of termination, all amounts unexpended by ESRL/GMD as of the date of ESRL/GMD's receipt of a notice of termination from the Requesting Business or University, or as of the date of ESRL/GMD's sending a notice of intent to terminate to the Requesting Business or University, shall be promptly refunded to Requesting Business or University, less any amounts required to close the account.

## **8. RESOLUTION OF DISAGREEMENTS**

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement or interpretation is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, disputes will be resolved in accordance with instructions provided in the Treasury Financial Manual (TFM) Volume I, Part 2, Chapter 4700, Appendix 10, available at <http://www.fms.treas.gov/tfm/index.html>.

## 9. SIGNATURES

\_\_\_\_\_  
**[Signature of person who has authority  
to bind Requesting Business or University  
to this agreement]**

[Typed name]

[Typed title]

[Typed name]

[Typed address]

[Typed e-mail address]

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
Jason Donaldson  
Chief, Financial Officer/CAO  
Mail Code: R  
Office of Oceanic and Atmospheric Research  
National Oceanic and Atmospheric Administration  
U.S. Department of Commerce  
1315 East West Highway  
Silver Spring, MD 20910, USA

\_\_\_\_\_  
Date

## **ATTACHMENT A – PAYMENT INSTRUCTIONS**

Please be sure to include within the funds transfer identifying information linking the payment to the invoice, i.e., ESRL/NOAA invoice#, Agreement #, PO#/Funding document, and Project # as referenced in Part 4 of this agreement.

If there are problems completing the bank transfer, or check payment contact Jones Harbor in NOAA Finance at [Jones.Harbor@noaa.gov](mailto:Jones.Harbor@noaa.gov) for funds transfer assistance.  
Jones phone number is 301-444-2133.

Please note that there are 2 distinct methods of electronic funds transfers (1) or (2) or payment can be made by choice (3) a check. Note: account numbers, etc., are different and unique for both methods.

### **CHOICE (1) - FEDWIRE**

#### **UNITED STATES DEPARTMENT OF COMMERCE - NOAA FEDWIRE Instructions**

Please provide the following instructions to your Financial Institution for the remittance of Fedwire payments to NOAA.

<b>FEDWIRE FIELD TAG</b>	<b>FEDWIRE FIELD NAME</b>	<b>REQUIRED INFORMATION</b>
{1510}	Type/Subtype	<b>1000</b>
{2000}	Amount	<i>(enter payment amount)</i>
{3400}	Receiver ABA routing number * (see notation * below chart)	<b>021030004</b>
{3400}	Receiver ABA short name	<b>TREAS NYC</b>
{3600}	Business Function Code	<b>CTR</b> <i>(or CTP)</i>
{4200}	Beneficiary Identifier (account number)	<b>13140001</b>
{4200}	Beneficiary Name	<b>NOAA</b>
{5000}	Originator	<i>(enter the name of the originator of the payment)</i>
{6000}	Originator to Beneficiary Information – Line 1	<b>Invoice Number</b>
{6000}	Originator to Beneficiary Information – Line 2	<b>Project Number</b>
{6000}	Originator to Beneficiary Information – Line 3	<b>Bill Number/Receivable Number</b>
{6000}	Originator to Beneficiary Information – Line 4	<b>Additional information to identify the payment (PO Number, MOU Number)</b>

\* The financial institution address for Treasury's routing number is: FRB of New York,  
33 Liberty Street, New York, NY 10045

**NOTE:** A foreign bank cannot make the payment directly – it must work through a U.S correspondent bank. The payment must be in U.S. dollars. The purchasing business/company or University is required to pay all Fedwire Fees, please make sure these fees are included in your payment.

<b>NOAA FINANCE AGENCY CONTACT- FOR FEDWIRE PAYMENT ISSUES</b>
--

Reubena Acuesta	Hdqtrs – Germantown, MD
Bernard Gitlin	Hdqtrs – Germantown, MD
Robin Y. Yim	WOB – Seattle, WA
Sharon L. Allen	WOB – Seattle, WA
Seong S. Yang	WOB – Seattle, WA

**CHOICE (2) – ACH Credit Instructions:**

**UNITED STATES DEPARTMENT OF COMMERCE - NOAA**  
**ACH Credit Instructions**

Please provide the following instructions to your Financial Institution for the remittance of Automated Clearing House (ACH) credits to NOAA.

NACHA RECORD TYPE CODE	NACHA FIELD	NACHA DATA ELEMENT NAME (WITH SYMBOL REFERENCE)	REQUIRED INFORMATION
5	3	Company Name	<i>(enter the name of the payor)</i>
5	6	Standard Entry Class Code	<b>CCD</b>
5	9	Effective Entry Date	<i>(enter intended settlement date)</i>
6	2	Transaction Code*	<b>22</b>
6	3 & 4	Receiving DFI Identification (ABA routing #) @	<b>051036706</b>
6	5	DFI Account Number	<b>540023</b>
6	6	Amount	<i>(enter payment amount)</i>
6	8	Receiving Company Name #	<i>(enter identification info. – up to 22 characters)#</i>
SYMBOL REFERENCE		DATA ELEMENT NAME	
*		ACH <u>debits</u> are not permitted to this ABA routing number. All debits received will be automatically returned	
@		Bank Name: Credit Gateway – ACH Receiver Address: 33 Livingston Ave. St. Paul, MN 55107      Phone: 1-877-815-1206	
#		Identifying Information such as Project #, MOU #, Invoice # If the payment cannot be identified, it will be returned	

The Requesting Business or University is required to pay all Wire Transfer Fees, please make sure these fees are included in your payment.

NOAA FINANCE AGENCY CONTACT - FOR ACH PAYMENT ISSUES:		
Reubena Acuesta	301-444-2171	Hdqtrs – Germantown, MD
Bernard Gitlin	301-444-2159	Hdqtrs – Germantown, MD
Robin Y. Yim	206-526-4658	WOB – Seattle, WA
<b>Sharon L. Allen</b>	<b>206-526-4638</b>	<b>WOB – Seattle, WA</b>
Seong S. Yang	206-526-4637	WOB – Seattle, WA

**CHOICE 3 – SENDING A CHECK:**

Note: When trying to make an electronic payment, if your bank goes through their US based partner, the payment should transfer. Should the Federal Reserve Bank (FRB) not recognize your foreign (to USA) bank, it would then be best to send payment in the form of a check. Should payment be made by check, please mail payment to the following address:

**MAKE CHECK PAYABLE TO:**

**U.S. Department of Commerce, NOAA**

**MAIL PAYMENT WITH COPY OF THE INVOICE TO:**

**U.S. Department of Commerce,  
NOAA/ESRL/GMD  
PO Box 979008  
St. Louis, MO 63197-9000**

**Reference: 36R1MXE-PBA for Hall and  
36R1MZK-PPT for Kitzis  
along with MOU# in memo area of check.**